

What is claimed is:

1. A method for infusing a fluid medicament into a patient which comprises the steps of:

5 engaging a reservoir in fluid communication with a body member, wherein the reservoir is filled with the fluid medicament and the body member is formed with a fluid pathway having a first opening and a second opening, and further wherein the reservoir is engaged with the first opening of the fluid pathway;

10 establishing fluid communication between an impulse chamber and the second opening of the pathway;

transferring a partial dose of the fluid medicament from the reservoir, through the pathway and into the impulse chamber to leave a remainder dose in the reservoir;

15 injecting the partial dose of fluid medicament from said impulse chamber through a nozzle and into the patient at a first fluid pressure; and

infusing the remainder dose from the reservoir through the nozzle and into the patient at a second fluid pressure, wherein said first fluid pressure is greater than said second fluid pressure.

20 2. A method as recited in claim 1 wherein the partial dose has a fluid volume in a range between one and twenty microliters (1-20 μ l), and further wherein the remainder dose has a fluid volume at least two times greater than a fluid volume for the partial dose.

25 3. A method as recited in claim 1 wherein the reservoir is made of glass and the reservoir is selected from a group consisting of a vial and a pre-filled cartridge.

4. A method as recited in claim 1 wherein the first fluid pressure is at least five times greater than the second fluid pressure.

5. A method as recited in claim 1 wherein said injecting step is accomplished using an impulse generator which comprises:

- 5 a plunger slidably positioned for advancement into the impulse chamber; and
a ram for striking said plunger to generate the first fluid pressure on the partial dose.

6. A method as recited in claim 1 wherein said injecting step and
10 said infusing step are accomplished sequentially to provide for a substantially continuous flow of fluid medicament to the patient.

7. A method for infusing a fluid medicament into a patient which comprises the steps of:

- 15 injecting a partial dose of fluid medicament from an impulse chamber through a nozzle and into the patient at a first fluid pressure; and
infusing a remainder dose from a reservoir through the nozzle and into the patient at a second fluid pressure, wherein said first fluid pressure is greater than said second fluid pressure, and wherein said
20 injecting step and said infusing step are accomplished sequentially to provide for a substantially continuous, uninterrupted flow of fluid medicament to the patient.

8. A method as recited in claim 7 further comprising the steps of:
engaging the reservoir in fluid communication with a body member, wherein the reservoir is filled with the fluid medicament and the body member is formed with a fluid pathway having a first opening and a second opening, and further wherein the reservoir is engaged with the first opening of the fluid pathway;
establishing fluid communication between the impulse chamber and the second opening of the pathway; and
transferring the partial dose of the fluid medicament from the reservoir, through the pathway and into the impulse chamber to leave the remainder dose in the reservoir.

9. A method as recited in claim 8 wherein the remainder dose has a fluid volume at least two times greater than a fluid volume for the partial dose, and wherein the first fluid pressure is at least five times greater than the second fluid pressure.

10. A method as recited in claim 7 wherein said injecting step is accomplished using an impulse generator which comprises:
a plunger slidably positioned for advancement into the impulse chamber; and
a ram for striking said plunger to generate the first fluid pressure on the partial dose.

11. A device for infusing a fluid medicament into a patient which comprises:

5 means for engaging a reservoir in fluid communication with a body member, wherein the reservoir is filled with the fluid medicament and the body member is formed with a fluid pathway having a first opening and a second opening, and further wherein the reservoir is engaged with the first opening of the fluid pathway;

means for establishing fluid communication between an impulse chamber and the second opening of the pathway;

10 means for drawing a partial dose of the fluid medicament from the reservoir, through the pathway and into the impulse chamber to leave a remainder dose in the reservoir;

means for injecting the partial dose of fluid medicament from said impulse chamber through a nozzle and into the patient at a first fluid pressure; and

15 means for infusing the remainder dose from the reservoir through the nozzle and into the patient at a second fluid pressure, wherein said first fluid pressure is greater than said second fluid pressure, and wherein said injecting means and said infusing step are sequentially operated to provide for a substantially continuous flow of
20 fluid medicament to the patient.

12. A device as recited in claim 11 wherein the remainder dose has a fluid volume at least two times greater than a fluid volume for the partial dose, and wherein the first fluid pressure is at least five times greater than the
25 second fluid pressure.

13. A device as recited in claim 11 wherein the reservoir is made of glass.

14. A device as recited in claim 11 wherein said injecting means is an impulse generator which comprises:

a plunger slidably positioned for advancement into the impulse chamber; and

5 a ram for striking said plunger to generate the first fluid pressure on the partial dose.

15 15. A device as recited in claim 11 wherein the reservoir is formed with a stopper and said engaging means is a spike, and further wherein the spike pierces the stopper to deliver the fluid medicament from the reservoir into the fluid pathway.

16. A device as recited in claim 11 wherein a pressure wave is created when the ram strikes the plunger, and wherein the device further comprises a means in the fluid pathway for attenuating the pressure wave within the device to protect the reservoir from the pressure wave.

15 17. A device as recited in claim 16 wherein the fluid pathway, in part, is formed with a relatively small diameter and acts as the pressure attenuating means by creating a fluid flow resistance to delivery of the fluid medicament from the reservoir into the fluid pathway.

20 18. A device as recited in claim 16 wherein the attenuating means is the fluid pathway formed with a plurality of angles between the reservoir and the impulse chamber for creating a tortuous pathway.

19. A device as recited in claim 16 wherein the attenuating means is a one-way valve.

20. A device as recited in claim 11 further comprising a suction means for creating a vacuum between the skin of the patient and the nozzle
5 to stabilize the skin against the nozzle during an injection of the fluid medication into the patient.